

CLAIMS

1 1. An isolated DNA fragment comprising a sequence of nucleotides that encodes a
2 calcium channel, wherein the sequence of nucleotides is selected from sequences of nucleotides
3 encoding a protein including the sequence of amino acids set forth in SEQ ID. No. 19, and
4 sequences of nucleotides that hybridize under non-stringent conditions to DNA encoding a
5 protein including the sequence set forth in SEQ ID No. 19.

1 2. The DNA fragment of Claim 1, wherein the sequence of nucleotides is selected from
2 sequences of nucleotides encoding a protein including the sequence of amino acids set forth in
3 SEQ ID. No. 18, and sequences of nucleotides that hybridize under non-stringent conditions to
4 DNA encoding a protein including the sequence set forth in SEQ ID No. 18.

1 3. The DNA fragment of Claim 1, wherein the calcium channel is a human neuronal
2 calcium channel.

1 4. A vertebrate expression vector containing the DNA fragment of Claim 1.

1 5. A vertebrate expression vector containing the DNA fragment of Claim 2.

1 6. A eukaryotic cell transiently or stably transformed with the vertebrate expression
2 vector of Claim 4, said cell expressing the calcium channel encoded by the DNA fragment.

1 7. The eukaryotic cell of claim 6, wherein the cell is further transformed with and
2 expresses an $\alpha 2\delta$ or a β calcium channel subunit, or both.

1 8. A eukaryotic cell transiently or stably transformed with a heterologous DNA fragment
2 according to Claim 1, said cell expressing the calcium channel encoded by the DNA fragment.

1 9. The eukaryotic cell of claim 8, wherein the cell is further transformed with and
2 expresses an $\alpha_2\delta$ or a β calcium channel subunit, or both.

1 10. A method for the production of the α_{-11} protein of an animal cell calcium channel
2 comprising, culturing the cell of Claim 6 under conditions whereby the DNA encoding the
3 calcium channel subunit is expressed and the α_{-11} subunit is produced.

1 11. A process for producing the eukaryotic cell that is transiently or stably transformed
2 and expresses a calcium channel, comprising the step of introducing RNA or DNA having a
3 sequence selected from among sequences that encode a protein including the sequence of amino
4 acids set forth in SEQ ID. No. 19, and sequences of nucleotides that hybridize under non-
5 stringent conditions to DNA encoding a protein including the sequence set forth in SEQ ID No.
6 19 and RNA or DNA encoding an $\alpha_2\delta$ or β calcium channel subunit into a cell.

1 12. A method of identifying compounds capable of acting as agonists or antagonists for
2 the α_{-11} calcium channel, comprising contacting a cell according to claim 4 with an agent to be
3 tested, and evaluating the interaction, if any, between the agent to be tested and the calcium
4 channel.

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PATENT APPLICATION

1 13. An isolated DNA fragment comprising a sequence of nucleotides that encodes a
2 human calcium channel subunit, wherein the sequence of nucleotides is selected from sequences
3 of nucleotides including the sequence set forth in SEQ ID No. 17.

1 14. An isolated DNA fragment having the sequence given by SEQ ID No. 19.

1 15. A method for mapping the distribution of calcium channel subunits within a tissue
2 sample comprising the steps of exposing the tissue to a reagent comprising a directly or indirectly
3 detectable label coupled to a DNA fragment comprising a sequence selected from among those
4 sequences given by SEQ ID Nos. 13-20, and detecting reagent that has bound to the tissue.

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